5G & Tele-Health in the Digital Decade

Webinar "Tele-Health Solutions Powered by 5G"

Cyril Krykwinski

Project Officer
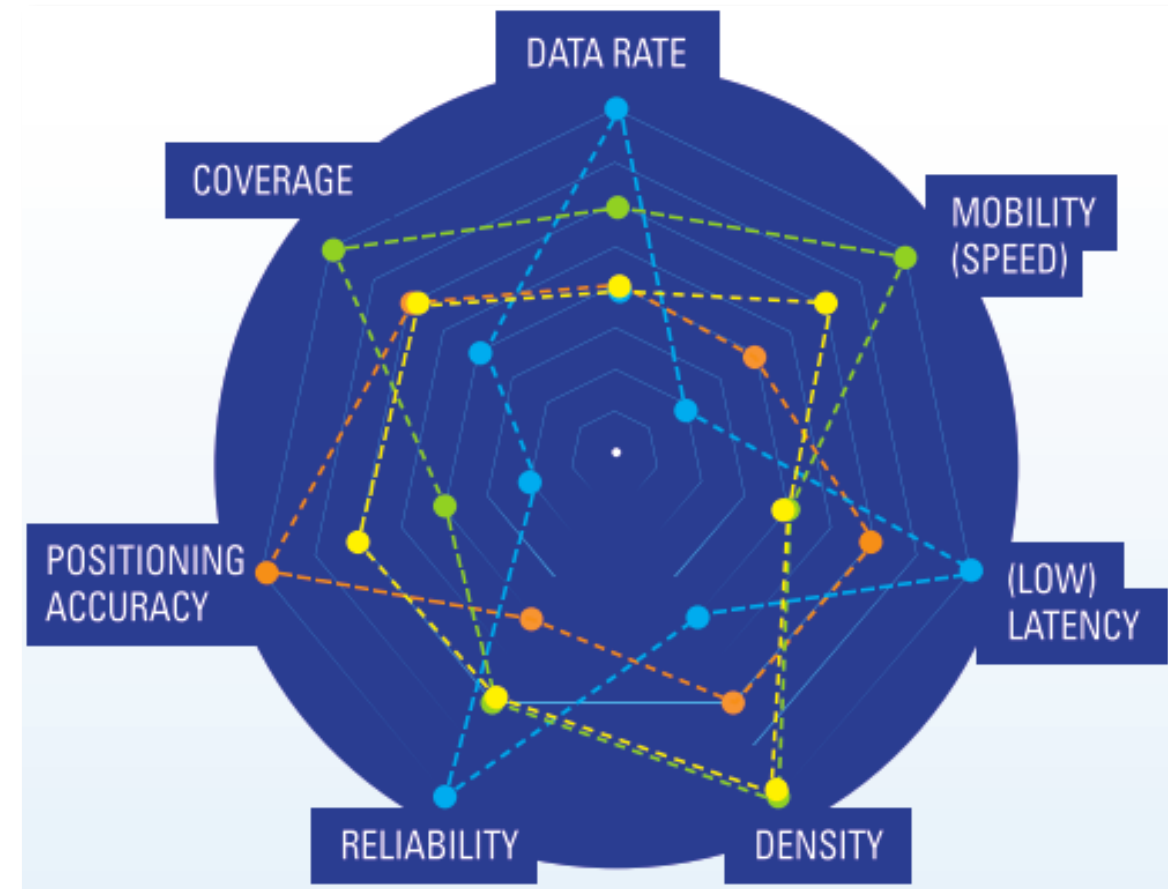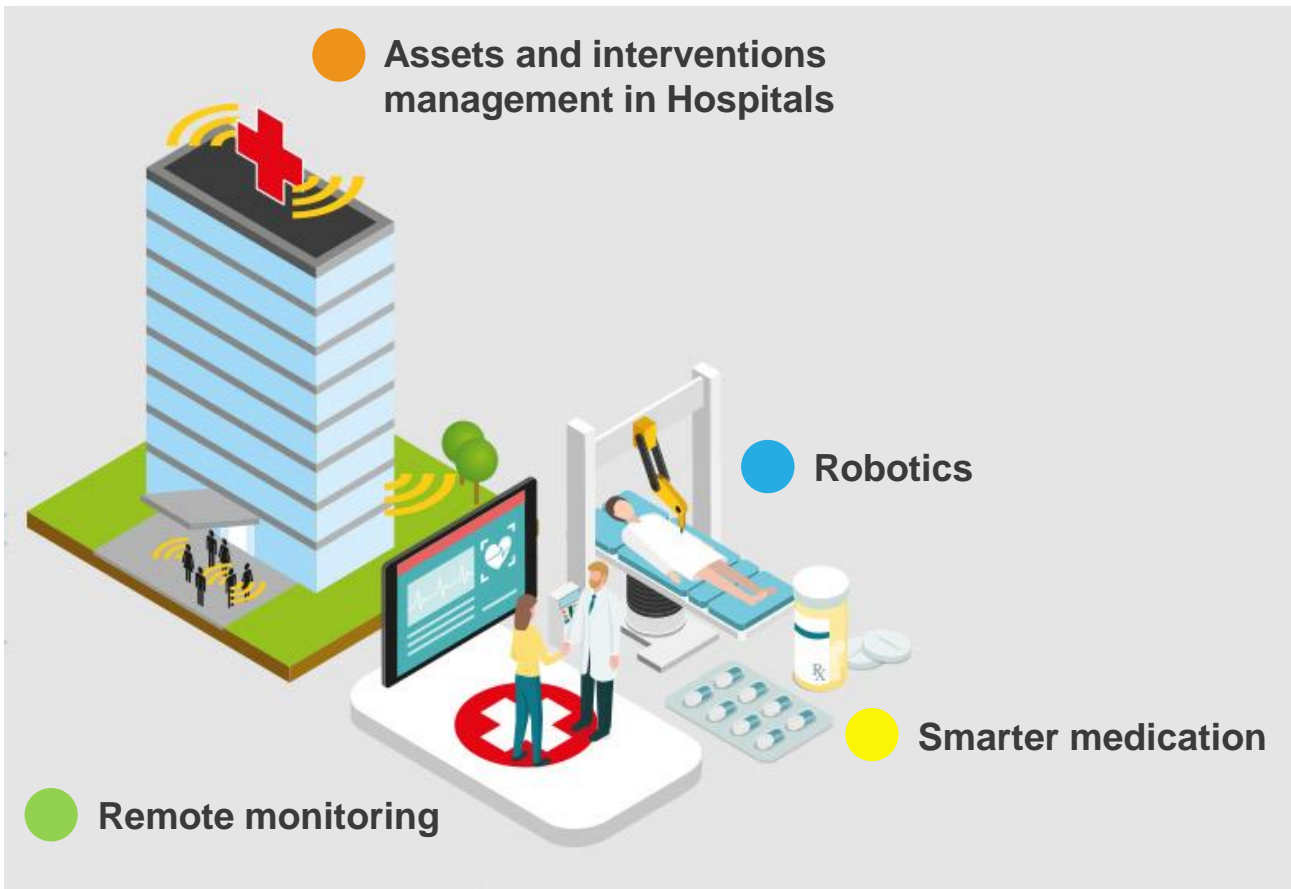
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DG CONNECT - Future Connectivity Systems

eHealth is changing healthcare paradigm
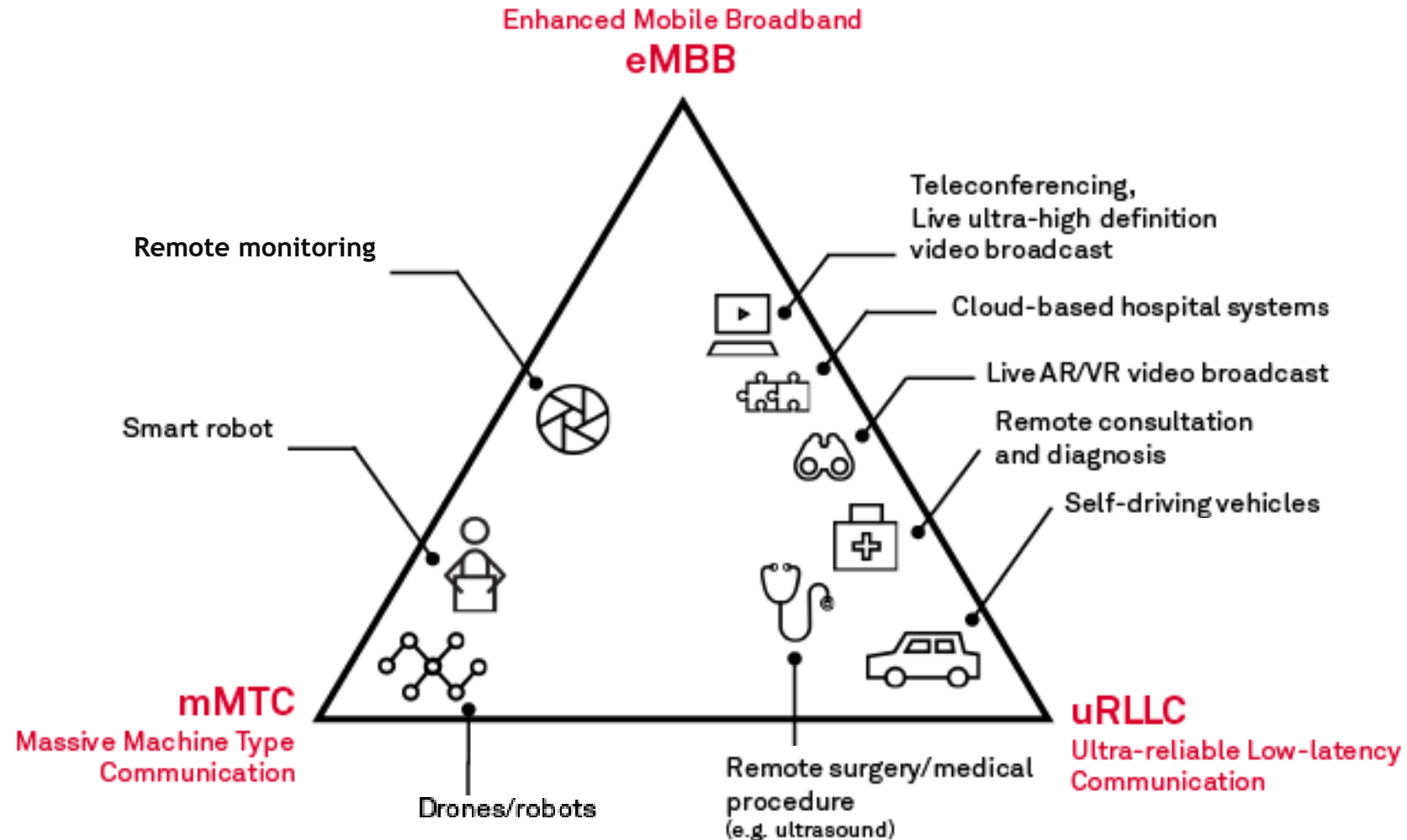

Convergence of medicine and technology for a <u>P</u>ersonalized, <u>P</u>redictive, <u>P</u>reventive, and <u>P</u>articipatory medicine
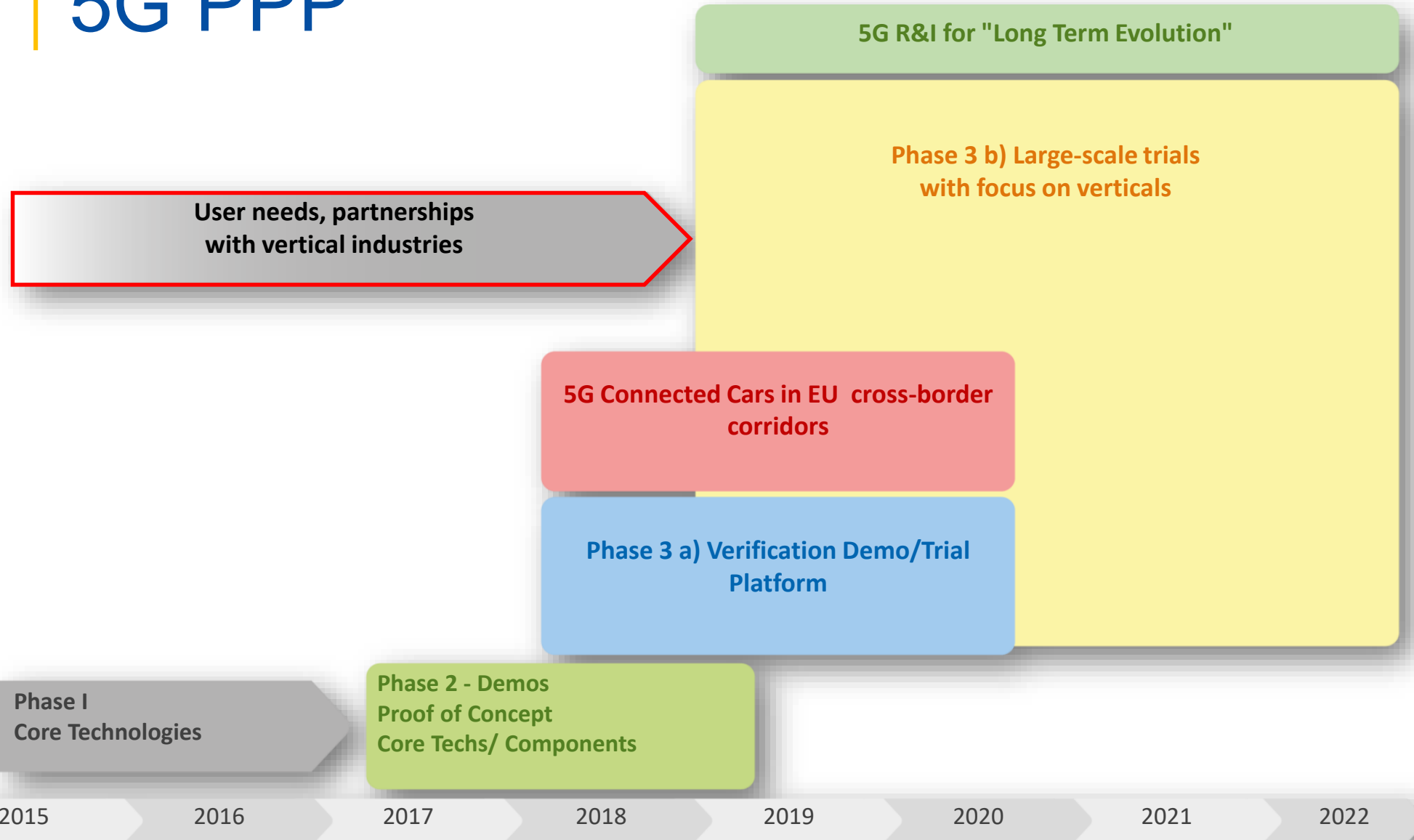
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5G requirements from eHealth use cases

5G opportunities for eHealth use cases

5G/6G Action Plan | Progress

Category	Specific Goals in 5G Action Plan (5GAP)*	Status
1) 5G targets & scheduled EU Alignment	1) Common EU timetable for deployment (2020 & 2025); '5G-ready' cities; support for field tests	☺ 25 MS with 5G commercial service (>250 5G cities) ☺ 12 5G cross-border corridors identified ☺ 14 MS have a 5G Roadmap
2) Radio Spectrum	2) Band identification ('pioneer' bands & beyond) 3) Common authorisation models (> 24 Hz)	☺ Pioneer bands identified and harmonised ☹ Only 45.8% of 5G pioneer spectrum assigned ☹ 26/28GHz delay
3) Dense networks	4) Metrics for fibre deployment (backhaul) Administrative best practice for small cells	☺ Small cell implementing act adopted ☹ Number of new cell deployments limited
4) Tech. standards	5) Basic standards by end 2019 Standards for vertical use cases	☺ Rel. 16 adopted (5G enhancements for verticals) ☹ Work still needed on vertical capability in Rel. 17 (QoS)
5) Service innovation	6) Industrial engagement on joint trials ('trial roadmaps') for verticals 7) Public sector as a primary user (PPDR) 8) Venture capital to foster innovation	☺ 200+ registered trials ☺ Industry trial strategy with flagship projects in 5G-PPP phase 3 ☺ Public use cases still being discussed (PPDR) ☺ Concept for 5G Venture Capital initiative with EIB (study finalised)

* 5G for Europe: An Action Plan - COM(2016) 588

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5G and COVID-19

Increasingly critical nature of digital services

- Technology sovereignty is at the heart of 5G and later 6G
- Gaining even further significance in light of COVID-19
- Europe's capacity to set evolving 5G and later 6G standards
- Role of equipment suppliers of strategic importance

Addressing COVID-19

- Communication networks critical especially in times of crisis
- 5G/6G for remote healthcare as well as rapid health crisis response (e.g. tracing apps)
- Economic recovery through major infrastructure investment programmes:
  - Key instrument for rapid economic recovery
  - Major opportunities for SMEs as part of new 5G-based digital ecosystems

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Digital Decade

Skills

ICT Specialists: 20 million + Gender convergence
Basic Digital Skills: min 80% of population

Infrastructures

Connectivity: Gigabit for everyone, 5G in all populated areas
Cutting edge Semiconductors: double EU share in global production
Data – Edge & Cloud: 10,000 climate neutral highly secure edge nodes
Computing: first computer with quantum acceleration

Government

Key Public Services: 100% online
e-Health: 100% availability medical records
Digital Identity: 80% citizens using digital ID
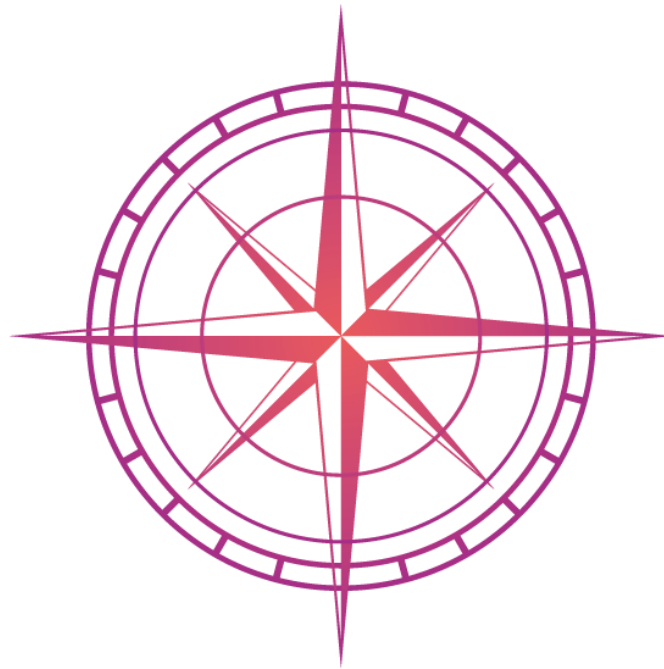
Business

Tech up-take: 75% of EU companies using Cloud/AI/Big Data
Innovators: grow scale ups & finance to double EU Unicorns
Late adopters: more than 90% of European SMEs reach at least a basic level of digital intensity

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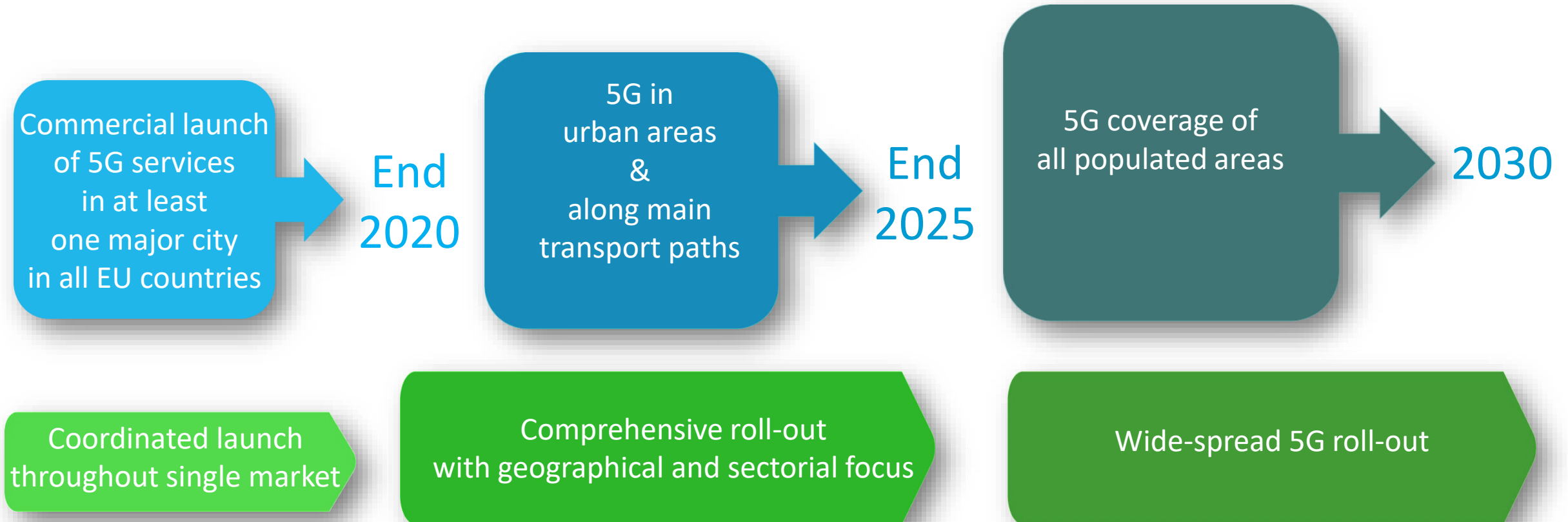
5G targets in the Digital Decade

Commercial launch of 5G services in at least one major city in all EU countries

End 2020

5G in urban areas & along main transport paths

End 2025

5G coverage of all populated areas

2030

Coordinated launch throughout single market

Comprehensive roll-out with geographical and sectorial focus

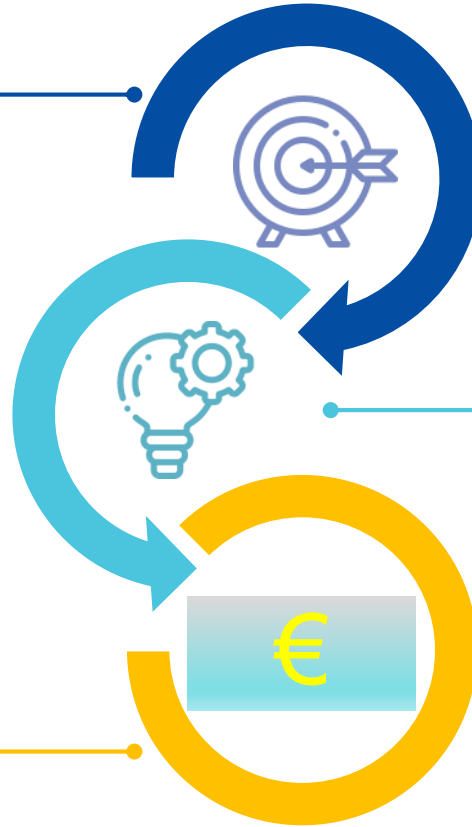Wide-spread 5G roll-out

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5G/6G in digital decade | Scope

New EU ambition
- 5G for recovery
- Update deployment objectives
- Cybersecurity toolbox
- Embrace fixed/mobile synergy
- Common deployment indicators
- Green Deal

New topics
- Context: Recovery and Resilience
- Building 5G "lead markets": transport, i4.0, health,...
- Expanding 5G spectrum roadmap
- Pan-EU approach to spectrum conditions
- New deployment models and supply market trends
- Strategic autonomy and cybersecurity (5G+6G)
- Low-energy operations / green applications
- Stronger stakeholder engagement through Smart Networks and Services Partnership (road to 6G)

Mobilising investments
- Infrastructure: CEF, RRF, Invest EU
- Addressing market failures
- Venture Capital: demand pull

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Beyond 5G / Towards 6G

- Strong competition for industrial leadership

- B5G/6G initiatives started in other regions of the world (US, Japan, China, India)

- It is important for the EU to gain / maintain a leading role.

- Our plans : **6G Smart Networks and Services**

  € 900 millions / 6 years under Horizon Europe matched by industry

- Importance of synergies, multiple Member States initiatives (Finland, Germany...)

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Smart Networks and Services Strategic areas

Applications	Industrial leadership
➔ Seizing the "Trillion €" opportunity (McKinsey) in vertical industries **➔ New types of applications**	**➔ Starting 6G race: an opportunity to consolidate EU lead**
Societal, Sustainable Development Goals	**Sovereignty/ Open Strategic Autonomy**
➔ Smart connectivity underpinning key societal issues	**➔ value chain approach for a comprehensive EU supply side** **➔ From components to cloud services**

Partnership: a response to the magnitude of the challenges

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Serving new Policy agenda with Digital Partnerships (cluster 4)

nano-components & systems

- low-power processor, network components (RF, net processor), AI hw/sw, bio-photonics basis for complex systems

light-based technologies

- high-precision sensing underpinning AI-systems, IoT, optical communication

computing technologies

- low-power processor, quantum simulations/computing, neuro-inspired software, extreme-parallelism, self-healing systems

networking

- 6G, resilient interconnect protocols, reconfigurable software, extreme network throughput interactions, quantum communication..

AI and Robotics

- data discovery, data staging, deep-learning, bio-physic control systems, augmented reality, light-based sensors

Create Collect — KDT — Smart Networks — Connect — AI, Robotics — Discover Exploit — EuroHPC — Process — Photonics

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The Smart Networks and Services Partnership

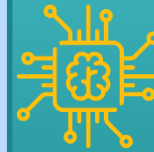## SMART NETWORKS & SERVICES

HORIZON EUROPE

Remaining and new challenges:

- Higher capacity – Zero touch networks
- Spectrum challenges (TeraHertz, flexible use)
- Advanced Radio processing
- Ultra high security
- Ultra low energy/EMF

Opportunities and needs:

- Smart devices, (edge) Networks, Data Processing
- New classes of applications ("Internet of Senses")
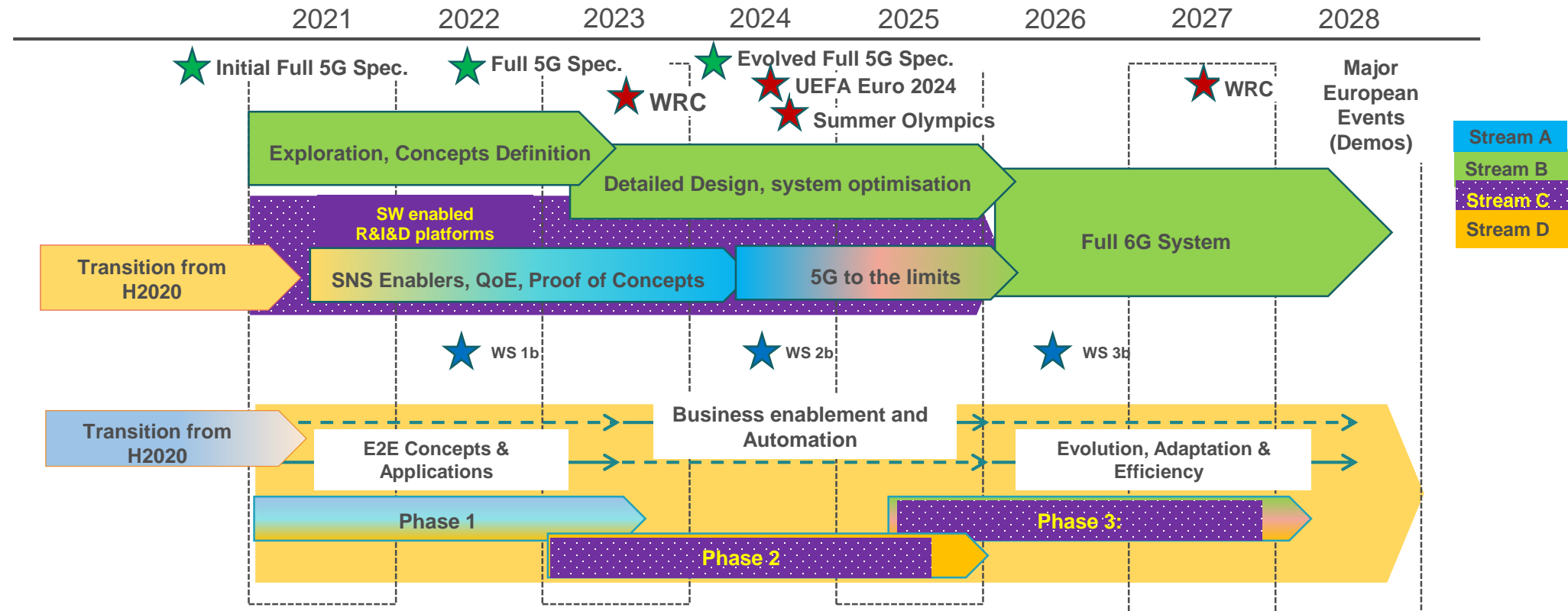- Verticals, requirements beyond 5G
- Value Chain perspective

DEP & CEF
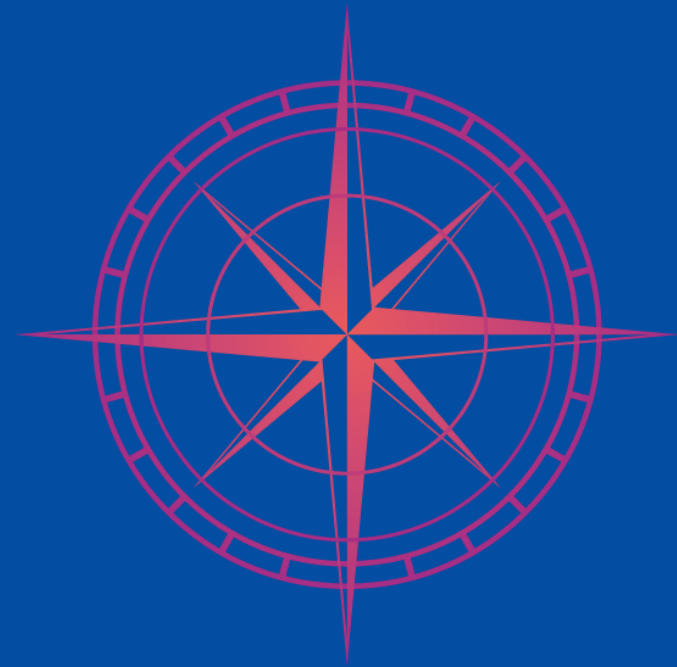
Deployment and capacity building:

- 5G corridor deployment for CAM
- Smart communities/ socio-economic drivers
- AI/Cybersecurity /blockchain enabled by smart networks

Thank you

Europe's Digital Policies

https://digital-strategy.ec.europa.eu/en/policies/5g

https://digital-strategy.ec.europa.eu/en/policies/smart-networks-and-services-joint-undertaking

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